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28 April 03
C6-BRC-T-03-007

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
Los Angeles Region
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

BOEING

Attention: John Geroch

Subject: **QUARTERLY REPORT NO. 6, FIRST QUARTER 2003, EXTENDED SOIL VAPOR EXTRACTION PILOT TESTING AND INTERIM ACTION FULL SCALE IMPLEMENTATION, BOEING REALTY CORPORATION, FORMER C-6 FACILITY, 19503 SOUTH NORMANDIE AVENUE, LOS ANGELES, CA**

Dear Mr. Geroch:

Please find enclosed for your review, a copy of the subject document prepared by Haley & Aldrich for Boeing Realty Corporation.

If you have any questions concerning this document, please contact the undersigned at 562-593-8623.

Sincerely,

Stephanie Sibbett
Boeing Realty Corporation

Cc: Mario Stavale, Boeing Realty Corporation
Dwight Merriman, RREEF

enclosure

HALEY & ALDRICH

BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

TECHNICAL MEMORANDUM
Quarterly Report No. 6
First Quarter 2003
Extended Soil Vapor Extraction Pilot Testing and Interim Action Full-Scale System Implementation

To: **Mr. Brian Mossman**
Boeing Realty Corporation
3855 Lakewood Blvd.
Building 1A MC D001-0097
Long Beach, CA 90846

From: **Haley & Aldrich, Inc.**

Date: **April 24, 2003**

Re: **Quarterly Report No. 6, First Quarter 2003, Extended Soil Vapor Extraction Pilot Testing and Interim Action Full-Scale System Implementation, Boeing Realty Corporation, Former C-6 Facility – Parcel C, Los Angeles, California**

Haley & Aldrich, Inc. has prepared this technical memorandum to summarize extended soil vapor extraction (SVE) pilot test activities and interim action full-scale system implementation conducted at the former Boeing C-6 Facility (subject property), in Los Angeles, California. One SVE system is currently present on the subject property, an interim action full-scale SVE system in the former Building 1/36 area (Figure 1). A second SVE system, previously located at the former Building 2 area, has been removed and a recommendation to approve decommissioning the SVE system was made to the Regional Water Quality Control Board, Los Angeles Region (LARWQCB).

The Building 1/36 SVE system was not operated during the fourth quarter of 2002 due to implementation of system modifications. During the first quarter 2003, system modifications were completed and the system was restarted. This technical memorandum summarizes system operations, field measurements, vapor sampling and analysis, mass removal, extraction well optimization, and planned future SVE activities for the Building 1/36 SVE system. An update on the progress of the decommissioning of the Building 2 SVE system is also presented.

BACKGROUND

Laboratory results for soil samples collected in the former Building 1/36 and Building 2 areas at the subject property indicated the presence of VOCs at depth, requiring remediation to prevent possible impact to

groundwater. Based on the results of the investigation, shallow occurrences of impacted soil (less than 12 feet below ground surface) were excavated and disposed of at an approved facility. SVE was recommended for the remediation of deep impacted soil. Haley & Aldrich was contracted by Boeing Realty Corporation (BRC) to install and operate two extended SVE pilot tests to obtain data for the evaluation of using SVE as a full-scale remedy. Workplans for the pilot test activities in the Building 1/36 and Building 2 areas were submitted and approved by the LARWQCB in May and September 2001, respectively.

FORMER BUILDING 1/36

Initial pilot testing commenced in the Building 1/36 area in July 2001 and continued until October 2001 when site grading began. Due to site grading conflicts, the SVE pilot test system was removed and wells were abandoned. At the end of November 2001, one dual-completion well (1-VEW-24A and B) was re-installed and the pilot test system was re-started on 13 December 2001. An additional forty-one dual and single completion wells (1-VEW-1 through 1-VEW-26) were installed during the month of January 2002 as part of the interim action SVE system implementation. The location of the Building 1/36 SVE system is shown in Figure 1. The well field layout, including well screen depths is shown on Figure 2.

The Building 1/36 interim action SVE system consists of forty-three 3-inch diameter, single and dual-completion, SVE wells, a trailer-mounted, 1,000-standard cubic feet per minute (scfm) blower system, three 8,000-lb granular activated carbon (GAC) vapor control vessels (primary, secondary, and stand-by), and associated piping. Haley & Aldrich began system operation on 15 May 2002.

During the second quarter of 2002, the system operated with an up-time efficiency of approximately 35% and removed a total of approximately 4,196 lbs. of VOCs. On June 7, 2002, the system shut down due to apparent vandalism. The remediation progress prior to system shut down is shown in Figure 3. Exothermic reactions on the GAC beds continued until June 12, when upon discovery, the beds over-heated and were quenched with water. Due to the GAC bed overheating, system damage occurred that required repair prior to re-start. GAC was removed from all three vessels on 13 June 2002.

In March 2003 the installation of a GAC water quench system to control methyl ethyl ketone (MEK) heat generation was completed and the system was restarted on 11 March 2003. The procedures for restarting the SVE system included bringing the wells in the well field on-line in a phased approach. Wells that are not likely to yield MEK, Category 3 wells, were brought on-line first, followed by wells that may yield MEK, Category 2 wells, brought on-line second, and wells that are likely to yield MEK, Category 1 wells, brought on line last. Throughout this process, flow rates and GAC vessel VOC and MEK concentrations were closely monitored.

FIRST QUARTER 2003 SVE OPERATION SUMMARY – FORMER BUILDING 1/36

Days of Operations	18
Available Days of Operation	20
Operational Time (%) (March 12 to March 31, 2003)	90%
Mass Removed during Period (lbs)	534
Cumulative Mass Removed (lbs) (July '01-March '03)	9,723

OPERATIONS INFORMATION - FORMER BUILDING 1/36

As of the end of the first quarter 2003, the Category 1 and Category 2 wells were brought on-line. Operational data and VOC mass removal for the extended SVE pilot test system are tabulated and shown graphically in Attachment 1. Key events that occurred during the quarter include:

- 11 March 2003 — Begin re-start of select wells during working hours
- 17 March 2003 — Continuing start-up procedures, SVE running continuously
- 31 March 2003 — System down for GAC regeneration

Total days of SVE system operation for this period was approximately 18 after completing system modifications, planned start-up procedure down time, and GAC change out. This equates to an up-time of approximately 90 percent. The percent uptime for the whole month of March is 57 % as shown in Attachment 1, Graph 1. Down time includes 11 days at the beginning of March 2003 before the system was re-started and scheduled down-time after the system was re-started. A system maintenance log is also provided in Attachment 1.

The monthly and cumulative mass of VOCs removed by the Building 1/36 system is shown in Attachment 1, Graph 2. Since July 2, 2001 (initial small-scale pilot test start-up) approximately 9,723 lbs. of VOCs have been extracted during approximately 3,873 hours of initial and expanded SVE pilot test operation. Operation of the SVE system is in compliance with the site-specific permit from the South Coast Air Quality Management District (SCAQMD).

FIELD MEASUREMENTS - FORMER BUILDING 1/36

VOC concentrations were measured with an organic vapor analyzer (OVA) calibrated to 100 ppmv hexane, as per the SCAQMD permit requirements, at the undiluted inlet, diluted inlet, between the GAC vessels, and at the exhaust stack. Flowrates were measured with a direct flow meter or by hand-held veloci-calc meter. Additional measurements were collected during operation including vacuum readings at each extraction well, temperatures at the GAC vessels, and blower exhaust temperature. The combined wellfield influent VOC measurements are provided in Attachment 1, Table 1 and plotted in Attachment 1, Graph 3. Field measurements of VOC influent to wells that have been brought on-line are provided in Attachment 1, Table 3.

VAPOR SAMPLING AND ANALYSIS- FORMER BUILDING 1/36

For this period, five vapor samples were collected in Tedlar bags from the inlet of the process air stream and delivered to a state-certified laboratory for analysis. These samples were collected for SCAQMD permit compliance as well as system performance evaluation. The vapor samples were collected using a Tedlar bag in a vacuum case. Laboratory analyses were conducted on these vapor grab samples using EPA Method 8260B/TO-14A. The laboratory results of the vapor sampling are summarized in Attachment 1, Table 2.

Based on the results of the laboratory analysis of vapor grab samples, maximum undiluted inlet VOC concentrations in ppbv for the period are as follows:

• Trichloroethene (TCE)	29,000 ppbv
• 1,1,1-Trichloroethane	66,000 ppbv
• Cis-1,2-Dichloroethene	470 ppbv
• 1,1-Dichloroethene (1,1-DCE)	64,000 ppbv
• Tetrachloroethene (PCE)	140 ppbv
• Methylene Chloride	300 ppbv
• Toluene	70,000 ppbv
• Benzene	180 ppbv
• TNMOC	350,000 ppbv

MEK was not reported by the analytical laboratory in the results of influent concentration analysis. Wells where MEK is present were brought on-line as of the end of the first quarter 2003. These wells will be brought on-line at the beginning of the second quarter 2003 as discussed below.

In December 2002, twenty-five static vapor samples were collected from fourteen wells and submitted for laboratory analysis. These samples were collected in an effort to identify high concentrations of MEK. MEK was reported above the method detection limit in 16 of the 25 samples collected in concentrations ranging from 0.0023 to 620 parts per million by volume (ppmv). These data are included in Attachment 1, Table 4, and MEK concentration contours are depicted on Figure 3. VOC concentration contours from the most recent, complete dataset are also presented on Figure 3.

EXTRACTION WELL OPTIMIZATION – FORMER BUILDING 1/36

During the first quarter of 2003, 19 of 26 wells were brought on-line. As discussed below, well optimization will be conducted after all wells have been brought on-line and the system is stabilized.

ACTIVITIES FOR NEXT QUARTER – FORMER BUILDING 1/36

During the next quarter, Category 1 wells will be brought on-line, safe temperature alarm set points will be set to control GAC vessels from overheating, safe loading rates of MEK to the GAC vessels will be evaluated, and the SVE system will be stabilized. After the Category 1 wells are brought on-line, the well field will be optimized for mass removal.

Since the Category 1 wells were not on-line, a complete dataset of VOC measurements from all Building 1/36 wells was not available at the end of this period. An updated VOC concentration contour map of the well field will be prepared and submitted in the Second Quarter 2003 report.

A Second Quarter 2003 report summarizing activities during the period April 2003 through June 2003 will be prepared and submitted to BRC in July 2003.

FORMER BUILDING 2

The SVE system at Building 2 was operated from 27 November 2001 to 11 November 2002. During this time an estimated 2,950 lbs. of VOC mass was removed by the system. The cumulative operational field data and laboratory analytical results as of November 2002 indicated that the SVE system had met the remediation goals outlined in the *Soil Vapor Operating System, Standard Operating Procedures* (Hargis, 2002) and system closure activities were initiated.

System closure activities were conducted beginning in the fourth quarter 2002 through the first quarter 2003. closure activities included:

- Identifying Key Wells: Eight wells that had the highest OVA readings were identified to be periodically monitored during the SVE closure sampling period.
- Pre-rebound vapor sampling: Influent samples were collected prior to well shutdown and analyzed for VOC concentrations. Two vapor samples were collected from the key wells, one was analyzed on-site using an OVA, and the other was analyzed at an off-site laboratory.
- Rebound monitoring: Vapor samples were collected from key wells for both on-site OVA analysis and for laboratory analysis at two, four, six, ten, and fourteen weeks beginning on 11 November 2002.
- Low Flow Vapor Closure Sampling: Key wells were sampled under low flow conditions after three well volumes had been purged. Two samples were collected from each well, one was analyzed on-site using an OVA, and the other was analyzed at an off-site laboratory.
- Post Rebound Vapor Closure Sampling: The SVE system was re-started and vapor samples collected from key wells and the system influent at four hour intervals. Samples were collected for on-site OVA analysis and off-site laboratory analysis.
- Confirmation Soil Sampling: A total of 27 soil samples were collected from 10 soil borings advanced in the Building 2 area and analyzed for VOCs.

The details and results of these activities are presented in the *Soil Vapor Extraction Closure Report* dated 5 March 2003 (Haley & Aldrich, 2003). The SVE system was dismantled the week March 24th and the SVE wells were abandoned the week of March 31st. A closure report was submitted to the LARWQCB with the recommendation that SVE system decommissioning and a "No Further Action" determination be approved for the site. LARWQCB approval was received on 1 April 2003.

We appreciate the opportunity to provide environmental consulting services on this project. Please do not hesitate to call if you have any questions or comments.

Sincerely yours,
HALEY & ALDRICH, INC.

Richard M. Farson, PE
Senior Engineer

for

Scott P. Zachary
Project Manager

Enclosures:

Figure 1 – SVE System Locations Building 1/36 and Building 2
Figure 2 – Building 1/36 SVE Well Field Layout
Figure 3 – SVE Well Head MEK and VOC Concentration Contours

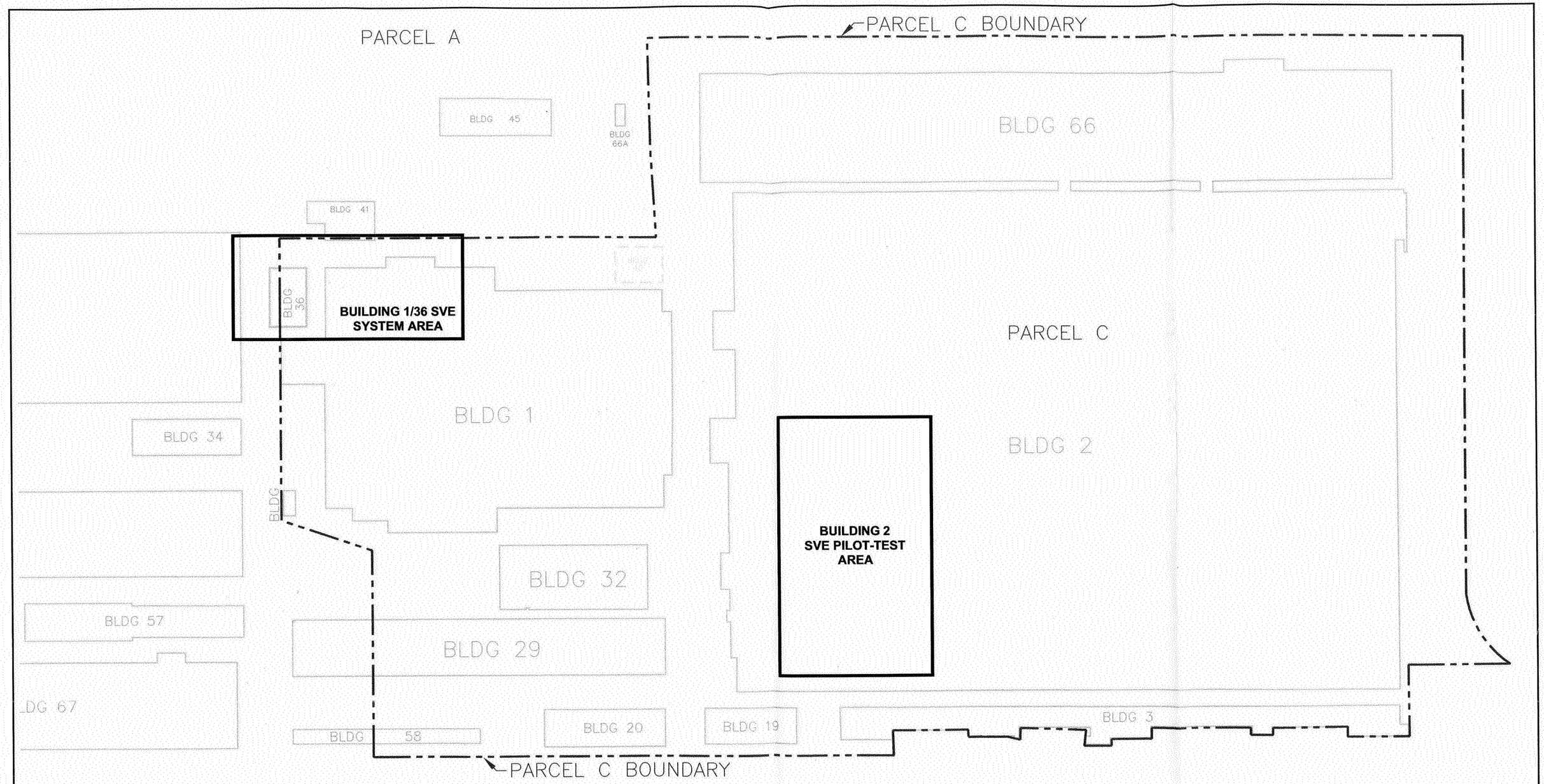
Attachment 1 – Building 1/36 SVE Operational Data

cc: John Scott, Boeing
Scott Zachary, Haley & Aldrich
Richard Farson, Haley & Aldrich
File

REFERENCES

Haley & Aldrich, Inc., 2002. Toxic Risk Assessment for Building 2 SVE Extended Pilot Test System, November 27.

Hargis and Associates, Inc., 2002. Soil Vapor Extraction System Closure Standard Operating Procedure, Revision 1.0 prepared for the Boeing Realty Corporation C-1 Facility, December 18.



N

0 20 40 80

SCALE IN FEET

ALL DIMENSIONS AND LOCATIONS APPROXIMATE

SOURCE OF BASEMAP: KENNEDY JENKS CONSULTANTS, 2000, SAMPLING AND ANALYSIS PLAN, BOEING REALTY CORPORATION'S C-6 FACILITY, PARCEL C, LOS ANGELES, CA, AUGUST 16, 2000.

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HALEY & ALDRICH

UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

BOEING REALTY CORPORATION
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

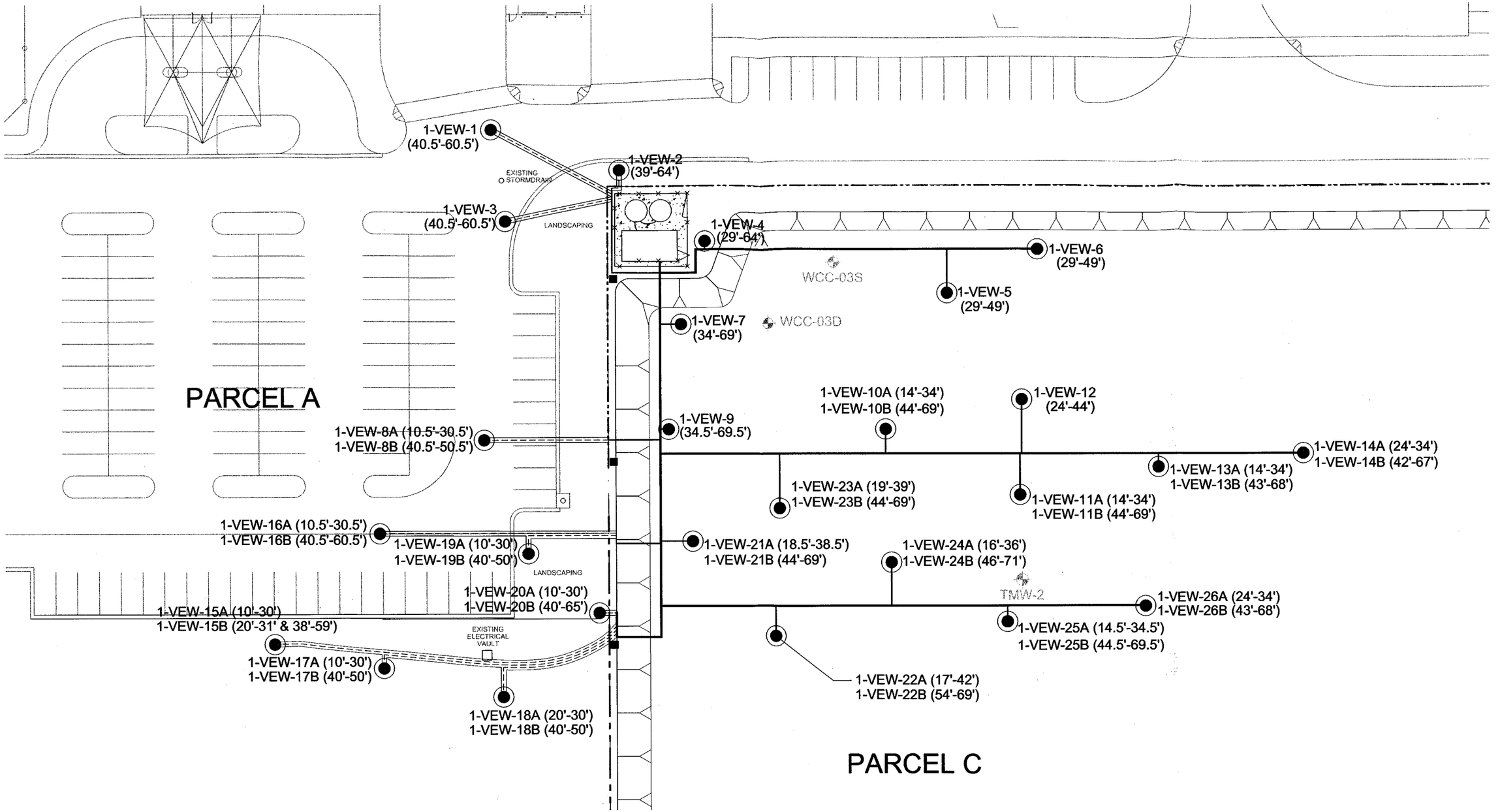
FIGURE 1

SVE SYSTEM LOCATIONS BUILDING 1/36 AND BUILDING 2

SCALE: AS SHOWN

APRIL 2003

BOE-C6-0103628



LEGEND

- PROPERTY LINE
- ABOVE GROUND PIPING
- BELOW GROUND PIPING
- SLOPE (TOP OF SLOPE)
- TMW-2 — EXISTING G.W. MONITORING WELL
- VAPOR EXTRACTION WELL
- (40'-65') — SCREEN INTERVAL

N

0 15 30 60

SCALE IN FEET

NOTE: ALL DIMENSIONS AND LOCATIONS APPROXIMATE

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BOE-C6-0103629

HALEY & ALDRICH

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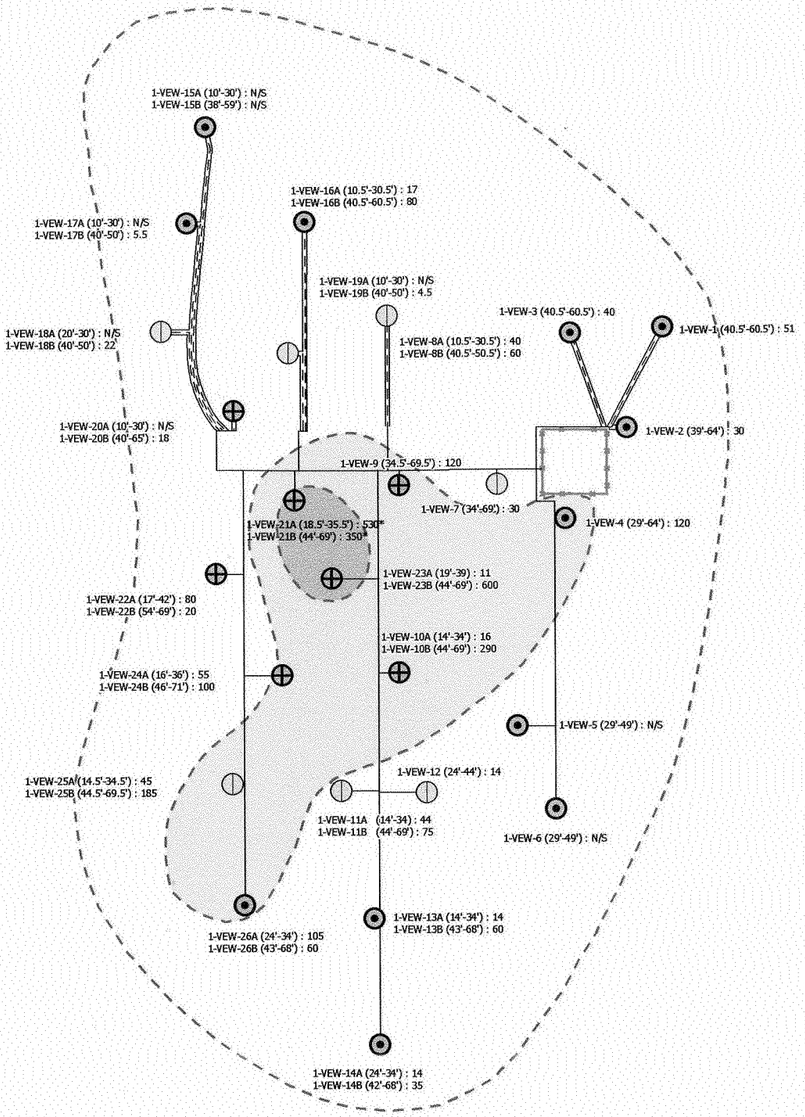
FORMER C-6 FACILTY
LOS ANGELES, CALIFORNIA

FIGURE 2

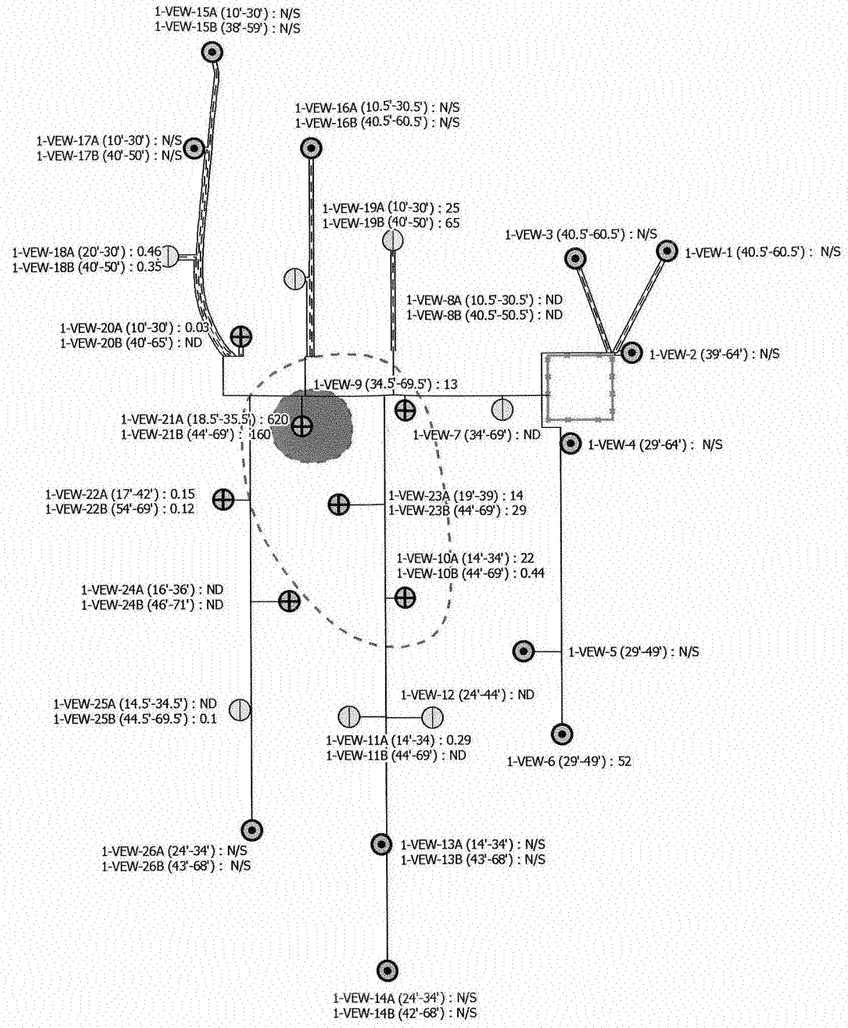
BUILDING 1/36
SVE WELL FIELD LAYOUT

SCALE: AS SHOWN

APRIL 2003



JUNE 3, 2002



DECEMBER 18, 2002

Legend

- **MEK** 10 - 100 PPMV
- **MEK** > 100 PPMV
- **VOC** 10 - 100 PPMV
- **VOC** 100 - 500 PPMV
- **VOC** > 500 PPMV
- 1- VEW-21A / 1- VEW-21B — Category 1 Vapor Extraction Well Location
- Category 2 Vapor Extraction Well Location
- Category 3 Vapor Extraction Well Location

N

0 35 70 140 210 Feet

UNDERGROUND ENGINEERING & ENVIRONMENTAL SOLUTIONS

BOEING REALTY COMPANY
FORMER C-6 FACILITY
LOS ANGELES, CALIFORNIA

FIGURE 3

WELLHEAD MEK AND VOC CONCENTRATION CONTOURS

SCALE AS SHOWN

APRIL 2003

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BOE-C6-0103630

ATTACHMENT 1

BUILDING 1/36
SVE OPERATIONAL DATA

HALEY & ALDRICH

TABLE 1 - TREATMENT SYSTEM FIELD DATA

Site Name: BRC Former C-6 Facility
Location: Los Angeles, California
System: Building 1/36 Interim Action SVE System

DATE	HOUR METER	TIME	INLET TEMP. (deg F)	UNDILUTED INLET FLOW RATE (1) (scfm)	DILUTED INLET FLOW RATE (1) (scfm)	VACUUM (inches of H2O)	DILUTED INFLUENT FID (2) (ppmv)	MID POINT CARBON FID (2) (ppmv)	EFFLUENT CARBON FID (2) (ppmv)	COMMENTS
Pilot system removed. 1000 scfm unit installed.										
05/15/02	5	16:50	NA	985	995	96	375 *	0.1 *	0.7 *	
05/16/02	31	17:45	NA	1040	1060	91	320 *	14.2 *	0.2 *	
05/17/02	55	17:20	NA	915	985	69	310 *	0.0 *	0.1 *	
05/18/02	76	14:40	NA	840	870	90	845	45.0	0.0	Primary vessel switched
05/19/02	97	11:40	NA	875	905	88	780	18.0	10.0	
05/20/02	119	10:00	NA	900	905	88	725	14.0	12.0	
05/21/02	143	14:50	NA	935	975	72	160	34.0	7.5	GAC Changeout
05/22/02	169	17:10	NA	925	950	77	330	9.8	7.0	
05/23/02	190	14:35	NA	925	815	62	355	9.8	9.0	
05/24/02	208	8:41	NA	403	400	61	1,250	13.0	12.0	
05/25/02	236	12:40	NA	383	377	60	850	10.5	9.0	
05/26/02	259	11:20	NA	392	364	61	1,000	13.0	11.8	
05/27/02	283	11:24	NA	402	368	60	1,000	25.0	12.0	GAC Changeout
05/29/02	286	17:30	NA	830	795	95	245 *	0.0 *	0.0 *	
06/03/02	400	10:00	NA	780	760	109	350	60.0	7.5	Primary vessel switched
Carbon bed overheating. System shutdown 6/7/02.										
Start-up procedures from 3/12/03 through 3/31/03										
03/12/03	NM	16:50	NM	500	500	NM	670	3.0	0.0 *	
03/13/03	NM	11:00	NM	700	700	NM	666	10.0	NM	
03/15/03	NM	NM	NM	645	645	NM	911	4.0	0.0	
03/16/03	NM	NM	NM	720	720	NM	1,325	11.0	0.0	
03/17/03	NM	NM	NM	710	710	NM	1,342	8.0	0.0	
03/24/03	NM	9:00	NM	720	720	65	395	140.0	0.0	Primary vessel switched
03/24/03	NM	9:00	NM	720	720	65	395	140.0	0.0	
Breakthrough on carbon vessel on 3/31/03. System shut down for carbon regeneration.										

Notes:

ppmv: parts per million by volume
scfm: standard cubic foot per minute (acfm corrected for vacuum and temperature)
NA: Data not available or applicable
NM : Data not measured
GAC: granular activated carbon
* PID Adjusted to FID equivalents as Hexane by multplying PID Reading by 0.35 (Hexane Equiv = PID Reading x PID CF X FID RF)
(1) Direct flow readings taken by hand-held TSI Veloci-calc Plus, unless otherwise denoted
(2) Measurements taken with a Foxboro OVA-108 PID calibrated to 100 ppmv Hexane.

TABLE 2 - C-6 SVE SYSTEM, BUILDING 1/36

Site Name: BRC Former C-6 Facility
Location: Los Angeles, California
System: Building 1/36 Interim Action SVE System

Compound	Sample Date	March 12, 2003	March 13, 2003	March 14, 2003	March 17, 2003	March 26, 2003
	Sample Type	Influent	Influent	Influent	Influent	Influent
	Sample ID	GAC001U_AV031203_0001	GAC001U_AV031303_0001	GAC001U_AV031403_0001	GAC001U_AV031703_0001	GAC0001D_AV032603_0001
PCE	(ppbv)	140	110	ND	ND	ND
TCE	(ppbv)	25,000	24,000	29,000	21,000	11,000
1,1,1 TCA	(ppbv)	6,900	37,000	66,000	63,000	42
1,1 DCE	(ppbv)	57,000	63,000	64,000	54,000	18,000
cis- 1,2 DCE	(ppbv)	280	290	470	360	260
1,1 DCA	(ppbv)	530	530	970	650	390
Methylene chloride	(ppbv)	ND	ND	ND	ND	300
Toluene	(ppbv)	810	25,000	70,000	49,000	11,000
Benzene	(ppbv)	ND	180	ND	ND	ND
TNMOC	(ppbv)	110,000	190,000	350,000	240,000	120,000

Notes:
ppbv = parts per million by volume
ND = not detected
TNMOC = Total Non Methane Organic Carbons

TABLE 3 - WELLFIELD DATA

Site Name: BRC Former C-6 Facility
Location: Los Angeles, California
System: Building 1/36 Interim Action SVE System

WELL ID	DATE	TIME	FLOW RATE (1) (scfm)	VACUUM (inches of H2O)	WELLHEAD FID (2) (ppmv)	COMMENTS
1-VEW-1	3/6/2002	13:40	NA	0.0	NA	Well Closed
	3/29/2002	8:15	NA	0.5	NA	"
	5/23/2002	11:21	4.41	9	115	Well Opened
	5/23/2002	12:38	18.9	40	125	"
	5/23/2002	14:19	37.6	96	155	"
	6/3/2002	10:00	39	90	51	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		26	65	210	Well Opened**
1-VEW-2	3/6/2002	13:40	NA	0.5	NA	Well Closed
	3/29/2002	8:15	NA	1	NA	"
	5/23/2002	11:24	5.45	9	49	Well Opened
	5/23/2002	12:35	21.2	35.5	51	"
	5/23/2002	14:23	47.2	96	58	"
	6/3/2002	10:00	45	90	30	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		32	83	106	Well Opened**
1-VEW-3	3/6/2002	13:40	NA	0.1	NA	Well Closed
	3/29/2002	8:15	NA	0.6	NA	"
	5/23/2002	11:17	3.37	8.5	32	Well Opened
	5/23/2002	12:43	15.6	42	87	"
	5/23/2002	14:13	30.2	96	82	"
	6/3/2002	10:00	24	69	40	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		32	70	190	Well Opened**
1-VEW-4	3/6/2002	13:40	NA	1.4	NA	Well Closed
	3/29/2002	8:15	NA	1.4	NA	"
	5/23/2002	10:45	2.61	13	8	Well Opened
	5/23/2002	NA	7.05	34.5	360	"
	5/23/2002	14:08	18.1	96	230	"
	6/3/2002	10:00	9	51	120	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		11	20	1,600	Well Opened**
1-VEW-5	3/6/2002	13:40	NA	1.4	NA	Well Closed
	3/29/2002	8:15	NA	1.5	NA	"
	5/21/2002	11:38	6.9	12	59	Well Opened
	5/21/2002	13:02	15.6	19	16	"
	5/21/2002	12:45	32.1	34	29	"
	6/3/2002	10:00	NA	10	NA	Well Closed
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		52	30	12	Well Opened**
1-VEW-6	3/6/2002	13:40	NA	2.2	NA	Well Closed
	3/29/2002	8:15	NA	1.6	NA	"
	5/21/2002	11:25	6.3	8	52	Well Opened
	5/21/2002	13:05	16.5	15	16	"
	5/21/2002	12:50	33.3	30	30	"
	6/3/2002	10:00	NA	7	NA	Well Closed
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		30	30	6	Well Opened**
1-VEW-7	3/6/2002	13:40	NA	1.9	NA	Well Closed
	3/29/2002	8:15	NA	0.1	NA	"
	5/23/2002	10:38	9.85	13	44	Well Opened
	5/23/2002	11:37	42.1	41	85	"
	5/23/2002	13:58	92	95	120	"
	6/3/2002	10:00	88	88	30	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		60	60	340	Well Opened**

TABLE 3 - WELLFIELD DATA

Site Name: BRC Former C-6 Facility
Location: Los Angeles, California
System: Building 1/36 Interim Action SVE System

WELL ID	DATE	TIME	FLOW RATE (1) (scfm)	VACUUM (inches of H2O)	WELLHEAD FID (2) (ppmv)	COMMENTS
1-VEW-8A	3/6/2002	13:40	NA	0.5	NA	Well Closed
	3/29/2002	8:15	NA	0.6	NA	"
	5/22/2002	11:25	10.75	11.5	175	Well Opened
	5/22/2002	14:23	63	41.5	150	"
	5/22/2002	15:32	112	82	142	"
	6/3/2002	10:00	33	22	40	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		39	30	120	Well Opened**
1-VEW-8B	3/6/2002	13:40	NA	0.3	NA	Well Closed
	3/29/2002	8:15	NA	0.6	NA	"
	5/17/2002	NA	3.7	14	565	Well Opened
	5/17/2002	NA	6.05	43	650	"
	5/17/2002	NA	11.3	72	510	"
	6/3/2002	10:00	10	90	60	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		19	30	1,207	Well Opened**
1-VEW-9	3/6/2002	13:40	NA	NA	NA	Well Closed
	3/29/2002	8:15	NA	NA	NA	"
	5/23/2002	10:30	4.33	13	63	"
	5/23/2002	13:05	27.7	45	410	Well Opened
	5/23/2002	13:56	46.4	95	305	"
	6/3/2002	10:00	49	88	120	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
1-VEW-10A	3/6/2002	13:40	NA	NA	NA	Well Closed
	3/29/2002	8:15	NA	NA	NA	"
	5/16/2002	NA	2.7	26	270	Well Opened
	5/16/2002	NA	11	54	195	"
	5/16/2002	NA	19.8	18	35	"
	6/3/2002	10:00	19	65	16	"
	6/702 through 3/11/03		SVE shut down for retrofit			
1-VEW-10B	3/6/2002	13:40	NA	NA	NA	Well Closed
	3/29/2002	8:15	NA	NA	NA	
	5/20/2002	13:05	2.74	20	290	Well Opened
	5/20/2002	15:45	12.7	25	750	
	5/20/2002	16:53	21	78	600	
	6/3/2002	10:00	29	60	290	
	6/702 through 3/11/03		SVE shut down for retrofit			
1-VEW-11A	3/6/2002	13:40	NA	4.7	NA	Well Closed
	3/29/2002	8:15	NA	2.8	NA	"
	5/15/2002	18:08	5.3	40	400	Well Opened
	5/15/2002	19:22	5.6	>100	400	"
	5/15/2002	18:57	20.1	52	420	"
	6/3/2002	10:00	22	90	44	Well Closed
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		34	35	48	Well Opened**
1-VEW-11B	3/6/2002	13:40	NA	5.0	NA	Well Closed
	3/29/2002	8:15	NA	3.0	NA	"
	5/18/2002	9:40	2.16	23.5	270	Well Opened
	5/18/2002	11:50	7.7	38	340	"
	5/18/2002	13:35	15.5	60	280	"
	6/3/2002	10:00	29	50	75	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		51	50	970	Well Opened**

TABLE 3 - WELLFIELD DATA

Site Name: BRC Former C-6 Facility
Location: Los Angeles, California
System: Building 1/36 Interim Action SVE System

WELL ID	DATE	TIME	FLOW RATE (1) (scfm)	VACUUM (inches of H2O)	WELLHEAD FID (2) (ppmv)	COMMENTS
1-VEW-12	3/6/2002	13:40	NA	3.5	NA	Well Closed
	3/29/2002	8:15	NA	2.2	NA	"
	5/21/2002	11:45	6.2	18.5	80	Well Opened
	5/21/2002	13:44	17.3	43	65	"
	5/21/2002	12:40	32.3	90	63	"
	6/3/2002	10:00	17	55	14	Well Closed
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		54	45	48	Well Opened**
1-VEW-13A	3/6/2002	13:40	NA	3.0	NA	Well Closed
	3/29/2002	8:15	NA	2.0	NA	"
	5/15/2002	18:23	5.4	20	84	Well Opened
	5/15/2002	19:05	11.2	56	95	"
	5/15/2002	19:29	28.1	>100	120	"
	6/3/2002	10:00	59	87	14	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		48	55	18	Well Opened**
1-VEW-13B	3/6/2002	13:40	NA	2.9	NA	Well Closed
	3/29/2002	8:15	NA	2.2	NA	"
	5/18/2002	NA	1.84	18.5	63	Well Opened
	5/18/2002	NA	8.3	33	220	"
	5/18/2002	NA	18.6	60.5	200	"
	6/3/2002	10:00	26	45	60	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		52	55	130	Well Opened**
1-VEW-14A	3/6/2002	13:40	NA	0.4	NA	Well Closed
	3/29/2002	8:15	NA	0.4	NA	"
	5/15/2002	18:48	5.3	24	27	Well Opened
	5/15/2002	19:11	15	30	27	"
	5/15/2002	19:37	27	>100	40	"
	6/3/2002	10:00	22	64	14	Well Closed
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		43	50	11	Well Opened**
1-VEW-14B	3/6/2002	13:40	NA	1.8	NA	Well Closed
	3/29/2002	8:15	NA	1.8	NA	"
	5/18/2002	NA	7.1	15.5	65	Well Opened
	5/18/2002	NA	34.2	33.5	95	"
	5/18/2002	NA	65	61	85	"
	6/3/2002	10:00	38	40	35	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		41	35	140	Well Opened**
1-VEW-15A	3/6/2002	13:40	NA	0.0	NA	Well Closed
	3/29/2002	8:15	NA	0.0	NA	"
	5/22/2002	12:14	16.4	6.5	13.5	Well Opened
	5/22/2002	13:51	74	35	23	"
	5/22/2002	16:00	138	80	19.5	"
	6/3/2002	10:00	84	61	NA	Well Closed
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		50	60	9	Well Opened**

TABLE 3 - WELLFIELD DATA

Site Name: BRC Former C-6 Facility
Location: Los Angeles, California
System: Building 1/36 Interim Action SVE System

WELL ID	DATE	TIME	FLOW RATE (1) (scfm)	VACUUM (inches of H2O)	WELLHEAD FID (2) (ppmv)	COMMENTS
1-VEW-15B	3/6/2002	13:40	NA	0.0	NA	Well Closed
	3/29/2002	8:15	NA	0.0	NA	"
	5/17/2002	NA	12	4	12	Well Opened
	5/17/2002	NA	60.5	27	45	"
	5/17/2002	NA	117	72	40	"
	6/3/2002	10:00	74	34	NA	Well Closed
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		45	55	104	Well Opened**
1-VEW-16A	3/6/2002	13:40	NA	0.0	NA	Well Closed
	3/29/2002	8:15	NA	0.2	NA	"
	5/22/2002	11:43	3.72	11	85	Well Opened
	5/22/2002	14:17	23.9	72	68	"
	5/22/2002	15:41	25.1	82	75	"
	6/3/2002	10:00	18	70	17	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		32	37	88	Well Opened**
1-VEW-16B	3/6/2002	13:40	NA	0.0	NA	Well Closed
	3/29/2002	8:15	NA	0.5	NA	"
	5/17/2002	NA	3.6	11	510	Well Opened
	5/17/2002	NA	16.1	25	650	"
	5/17/2002	NA	39.3	74	610	"
	6/3/2002	10:00	22	65	80	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		37	50	1,400	Well Opened**
1-VEW-17A	3/6/2002	13:40	NA	0.0	NA	Well Closed
	3/29/2002	8:15	NA	0.1	NA	"
	5/22/2002	12:00	6.55	7	24	Well Opened
	5/22/2002	13:57	29.2	35	9.5	"
	5/22/2002	15:54	58.5	80	5.6	"
	6/3/2002	10:00	NA	NA	NA	Well Closed
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		37	50	5	Well Opened**
1-VEW-17B	3/6/2002	13:40	NA	0.0	NA	Well Closed
	3/29/2002	8:15	NA	0.2	NA	"
	5/17/2002	NA	4.5	6	110	Well Opened
	5/17/2002	NA	24.2	36	110	"
	5/17/2002	NA	41.5	72	110	"
	6/3/2002	10:00	40	58	6	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		30	55	21	Well Opened**
1-VEW-18A	3/6/2002	13:40	NA	0.0	NA	Well Closed
	3/29/2002	8:15	NA	0.3	NA	"
	5/22/2002	12:18	2.8	33.5	12.2	Well Opened
	5/22/2002	13:45	9.25	72	10.5	"
	5/22/2002	16:08	19.4	80	9.5	"
	6/3/2002	10:00	NA	NA	NA	Well Closed
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		40	50	8	Well Opened**

TABLE 3 - WELLFIELD DATA

Site Name: BRC Former C-6 Facility
Location: Los Angeles, California
System: Building 1/36 Interim Action SVE System

WELL ID	DATE	TIME	FLOW RATE (1) (scfm)	VACUUM (inches of H2O)	WELLHEAD FID (2) (ppmv)	COMMENTS
1-VEW-18B	3/6/2002	13:40	NA	0.2	NA	Well Closed
	3/29/2002	8:15	NA	0.4	NA	"
	5/17/2002	NA	3	2	7.9	Well Opened
	5/17/2002	NA	12.75	16	73	"
	5/17/2002	NA	32.5	72	85	"
	6/3/2002	10:00	32	86	22	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		48	52	79	Well Opened**
1-VEW-19A	3/6/2002	13:40	NA	0.0	NA	Well Closed
	3/29/2002	8:15	NA	0.0	NA	"
	5/22/2002	11:49	6.55	9.5	25.1	Well Opened
	5/22/2002	14:12	35.2	40	13	"
	5/22/2002	15:48	64.5	82	11.7	"
	6/3/2002	10:00	NA	15	NA	Well Closed
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		37	55	12	Well Opened**
1-VEW-19B	3/6/2002	13:40	NA	0.6	NA	Well Closed
	3/29/2002	8:15	NA	0.6	NA	"
	5/17/2002	NA	3.5	14	59	Well Opened
	5/17/2002	NA	15.8	34	65	"
	5/17/2002	NA	43.1	74	60	"
	6/3/2002	10:00	16	87	5	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		35	40	55	Well Opened**
1-VEW-20A	3/6/2002	13:40	NA	1.3	NA	Well Closed
	3/29/2002	8:15	NA	0.9	NA	"
	5/22/2002	12:23	2.87	9	11	Well Opened
	5/22/2002	13:39	14.1	31.5	11.8	"
	5/22/2002	16:12	33.1	80	4.2	"
	6/3/2002	10:00	NA	10	NA	Well Closed
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
1-VEW-20B	3/6/2002	13:40	NA	1.4	NA	Well Closed
	3/29/2002	8:15	NA	1.0	NA	"
	5/17/2002	10:30	2.32	14	100	Well Opened
	5/17/2002	NA	10.7	22	170	"
	5/17/2002	NA	32.6	72	105	"
	6/3/2002	10:00	33	61	18	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
1-VEW-21A	3/6/2002	13:40	NA	NA	NA	Well Closed
	3/29/2002	8:15	NA	NA	NA	"
	5/16/2002	NA	3.57	39	3040	Well Opened
	5/16/2002	NA	5.4	48	3200	"
	5/16/2002	NA	37.7	96	2900	"
	6/3/2002	10:00	28	55	NA	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			

TABLE 3 - WELLFIELD DATA

Site Name: BRC Former C-6 Facility
Location: Los Angeles, California
System: Building 1/36 Interim Action SVE System

WELL ID	DATE	TIME	FLOW RATE (1) (scfm)	VACUUM (inches of H2O)	WELLHEAD FID (2) (ppmv)	COMMENTS
1-VEW-21B	3/6/2002	13:40	NA	NA	NA	Well Closed
	3/29/2002	8:15	NA	NA	NA	"
	5/20/2002	13:22	1.74	15	700	Well Opened
	5/20/2002	15:28	4.5	45	1030	"
	5/20/2002	17:24	36.3	79	1725	"
	5/21/2002	9:55	48.3	92	1200	"
	6/3/2002	10:00	47	90	NA	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
1-VEW-22A	3/6/2002	13:40	NA	5.0	NA	Well Closed
	3/29/2002	8:15	NA	3.1	NA	"
	5/16/2002	NA	3.1	28	2200	Well Opened
	5/16/2002	NA	10.6	52	2400	"
	5/16/2002	NA	18.05	92	1600	"
	6/3/2002	10:00	18	74	80	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
1-VEW-22B	3/6/2002	13:40	NA	5.1	NA	Well Closed
	3/29/2002	8:15	NA	3.1	NA	"
	5/20/2002	13:30	4.12	16	37	Well Opened
	5/20/2002	15:20	21.1	40	72	"
	5/20/2002	17:35	37	77	179	"
	5/21/2002	10:07	43.6	91	230	"
	6/3/2002	10:00	51	88	20	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
1-VEW-23A	3/6/2002	13:40	NA	NA	NA	Well Closed
	3/29/2002	8:15	NA	NA	NA	"
	5/16/2002	NA	3.25	20	130	Well Opened
	5/16/2002	NA	12.5	49	45	"
	5/16/2002	NA	21.4	20	35	"
	6/3/2002	10:00	14	40	11	Well Closed
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
1-VEW-23B	3/6/2002	13:40	NA	NA	NA	Well Closed
	3/29/2002	8:15	NA	NA	NA	"
	5/20/2002	13:16	2.67	15	46	Well Opened
	5/20/2002	15:38	10	23	1700	"
	5/20/2002	17:08	19.5	79	9000	"
	5/21/2002	9:48	46.3	94	8000	"
	6/3/2002	10:00	37	90	600	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			

TABLE 3 - WELLFIELD DATA

Site Name: BRC Former C-6 Facility
Location: Los Angeles, California
System: Building 1/36 Interim Action SVE System

WELL ID	DATE	TIME	FLOW RATE (1) (scfm)	VACUUM (inches of H2O)	WELLHEAD FID (2) (ppmv)	COMMENTS
1-VEW-24A	1/18/2002	10:40	NA	88	> 9,999 *	Well opened
	1/24/2002	11:00	NA	75	> 9,999 *	"
	1/31/2002	13:45	33	23	> 9,999	"
	2/7/2002	16:50	31	26	> 9,999	"
	2/15/2002	17:51	NA	NA	> 9,999 *	"
	2/21/2002	17:44	46.5	30	> 9,999	"
	2/27/2002	14:17	32	30	> 9,999	"
	3/6/2002	13:40	94	64	> 9,999	"
	3/13/2002	16:20	45	30	> 9,999	"
	3/20/2002	8:30	42	32	> 9,999	"
	3/29/2002	8:15	9	28	4,000	"
	5/16/2002	NA	8.85	24	450	"
	5/16/2002	NA	33.7	42	550	"
	5/16/2002	NA	77.5	90	520	"
	6/3/2002	10:00	43	56	55	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
1-VEW-24B	12/13/2001	15:00	10	54	> 9,999 *	Well opened
	12/20/2001	14:15	5	47	> 800 *	"
	1/3/2002	13:15	32	48	> 320 *	"
	1/10/2002	14:00	30	48	> 700 *	"
	1/18/2002	8:25	25	90	> 760 *	"
	1/18/2002	10:40	NA	90	> 2,500 *	"
	1/24/2002	11:00	93	90	> 9,999 *	"
	1/31/2002	13:45	9	23	> 9,999	"
	2/7/2002	16:50	9	26	> 9,999	"
	2/15/2002	17:51	NA	NA	> 9,999 *	"
	2/21/2002	17:44	11	30	> 9,999	"
	2/27/2002	14:17	8	31	> 9,999	"
	3/6/2002	13:40	13	64	> 9,999	"
	3/13/2002	16:20	10.5	30	> 9,999	"
	3/20/2002	8:30	5.8	32	> 9,999	"
	3/29/2002	8:15	38	28	> 9,999	"
	5/20/2002	13:43	1.08	15	42	"
	5/20/2002	15:10	4.4	41	490	"
	5/20/2002	17:45	28.4	77	1010	"
	5/21/2002	10:16	41.4	91	635	"
	6/3/2002	10:00	30	70	100	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
1-VEW-25A	3/6/2002	13:40	NA	5.5	NA	Well Closed
	3/29/2002	8:15	NA	3.7	NA	"
	5/16/2002	NA	2.68	23	125	Well Opened
	5/16/2002	NA	13.5	44	135	"
	5/16/2002	NA	28	90	120	"
	6/3/2002	10:00	25	46	45	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
	3/24/2003		0:00	32	110	Well Opened**
1-VEW-25B	3/6/2002	13:40	NA	5.9	NA	Well Closed
	3/29/2002	8:15	NA	3.5	NA	"
	5/18/2002	10:17	1.36	23	280	Well Opened
	5/18/2002	12:30	3.75	35.5	370	"
	5/18/2002	14:23	7.65	61	310	"
	6/3/2002	10:00	19	45	185	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			

TABLE 3 - WELLFIELD DATA

Site Name: BRC Former C-6 Facility
Location: Los Angeles, California
System: Building 1/36 Interim Action SVE System

WELL ID	DATE	TIME	FLOW RATE (1) (scfm)	VACUUM (inches of H2O)	WELLHEAD FID (2) (ppmv)	COMMENTS
1-VEW-26A	3/6/2002	13:40	NA	3.7	NA	Well Closed
	3/29/2002	8:15	NA	2.7	NA	"
	5/16/2002	10:50	5.45	37	95	Well Opened
	5/16/2002	NA	24.5	90	190	"
	5/16/2002	NA	33.5	>100	95	"
	6/3/2002	10:00	55	85	105	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			
1-VEW-26B	3/6/2002	13:40	NA	3.8	NA	Well Closed
	3/29/2002	8:15	NA	2.8	NA	"
	5/18/2002	NA	5.15	19.5	260	Well Opened
	5/18/2002	NA	23	35	280	"
	5/18/2002	NA	43.6	61	240	"
	6/3/2002	10:00	24	36	60	"
	6/702 through 3/11/03		SVE shut down for retrofit			
	3/12/2003		Begin start-up procedures			

Notes:
ppmv: parts per million by volume
scfm: standard cubic foot per minute (acfm corrected for vacuum and temperature)
NA: data was not recorded or available
* Well head readings not taken. Estimates based on diluted inlet concentrations
(1) Direct flow readings taken by hand-held TSI Veloci-calc Plus
(2) Measurements taken with a Foxboro OVA FID calibrated to 100 ppmv Hexane, results as Hexane
** Well opened between 3/12/03 and 3/24/03 as part of start-up procedures. Data provided was collected on 3/24/03

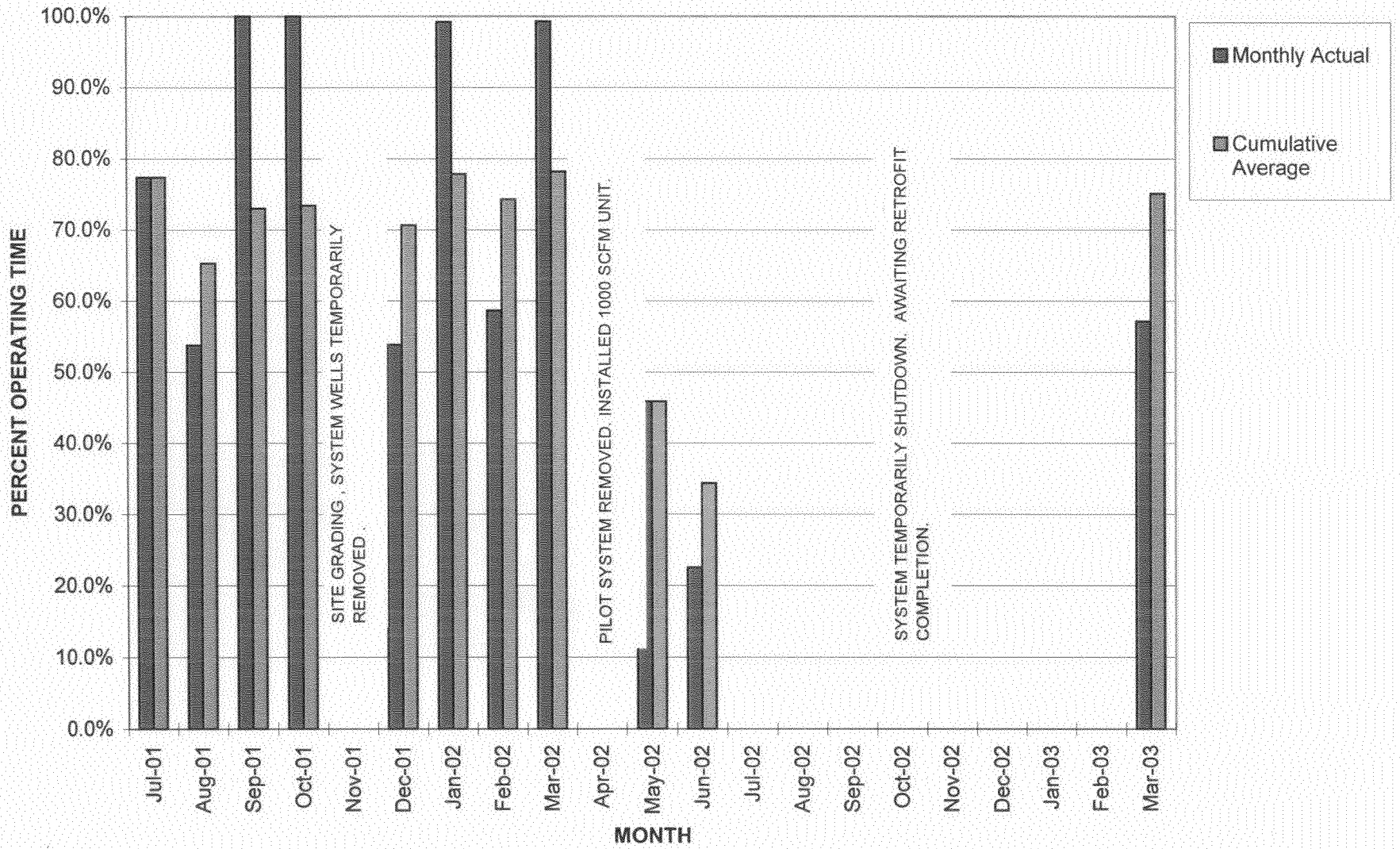
TABLE 4 - MEK ANALYTICAL RESULTS IN WELLHEAD VAPOR SAMPLES

Site Name: BRC Former C-6 Facility
Location: Los Angeles, California
System: Building 1/36 Interim Action SVE System

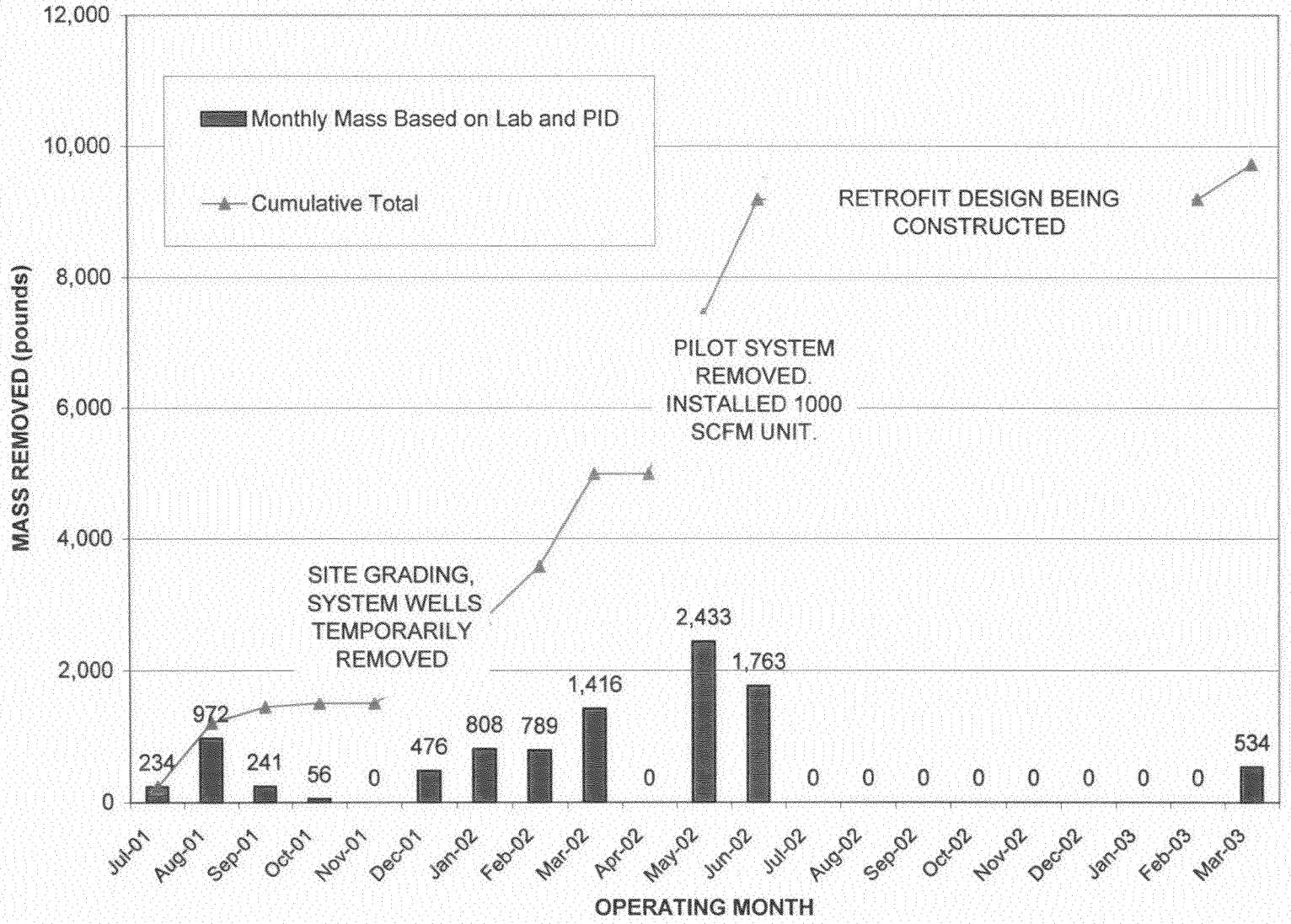
Well	Sample Date	Methyl Ethyl Ketone (ppmv)
1-VEW-9	18 December 2002	13
1-VEW-23A	18 December 2002	14
1-VEW-23B	18 December 2002	29
1-VEW-21A	18 December 2002	620
1-VEW-21B	18 December 2002	160
1-VEW-12	18 December 2002	ND
1-VEW-7	18 December 2002	ND
1-VEW-22A	18 December 2002	0.15
1-VEW-22B	18 December 2002	0.12
1-VEW-10A	18 December 2002	22
1-VEW-10B	18 December 2002	0.44
1-VEW-24A	18 December 2002	ND
1-VEW-24B	18 December 2002	ND
1-VEW-25A	18 December 2002	ND
1-VEW-25B	18 December 2002	0.097
1-VEW-11A	18 December 2002	0.29
1-VEW-11B	18 December 2002	ND
1-VEW-20A	18 December 2002	0.023
1-VEW-20B	18 December 2002	ND
1-VEW-19A	18 December 2002	0.026
1-VEW-19B	18 December 2002	0.6
1-VEW-18A	18 December 2002	0.46
1-VEW-18B	18 December 2002	0.35
1-VEW-8A	18 December 2002	ND
1-VEW-8B	18 December 2002	ND

Notes:
ppmv = parts per million by volume
ND = below method detection limits
< = less than

GRAPH 1
MONTHLY PERCENT OPERATION



GRAPH 2
CUMULATIVE VOLATILE ORGANIC COMPOUND MASS REMOVED



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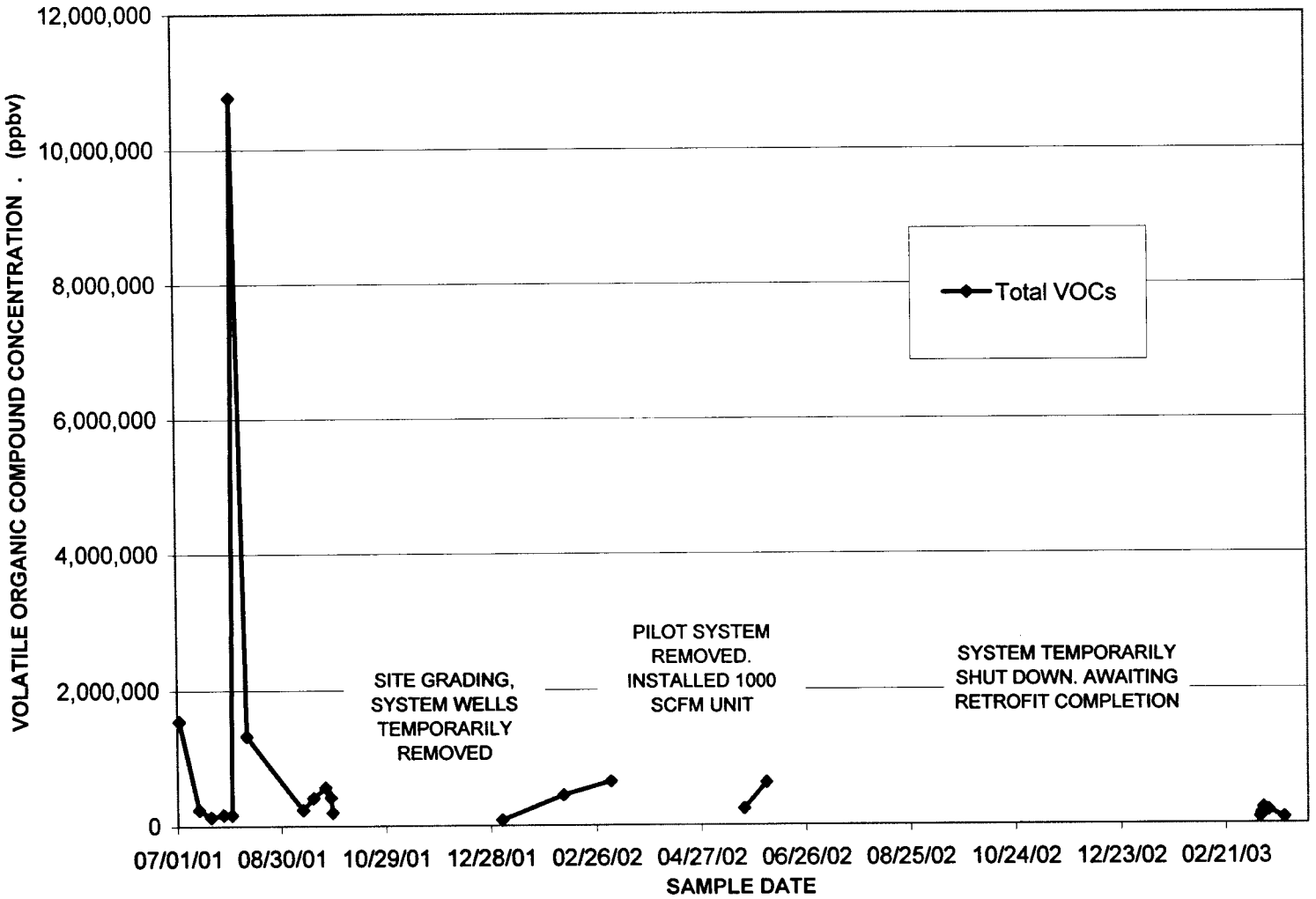
GRAPH 3
SVE SYSTEM TOTAL DILUTED VOC INFLUENT CONCENTRATION
(LABORATORY DATA)



MAINTENANCE LOG

Site Name: BRC Former C-6 Facility
Location: Los Angeles, California
System: Building 1/36 Interim Action SVE System

DATE	MAINTENANCE ACTIVITY
7/2/2001	Pilot system started
8/17/2001	One GAC vessel was changed out (8,000 lbs), system shut down contingent to potential move to C-1
9/11/2001	System restarted
10/1/2001	System shutdown and wells abandoned for site grading
11/29/2001	New well installed and re-piped to system
12/13/2001	System restarted
12/20/2001	System shutdown, GAC breakthrough
12/28/2001	One GAC vessel was changed out (8,000 lbs), system restarted
1/31/2002	System shutdown, GAC breakthrough
2/6/2002	One GAC vessel was changed out (8,000 lbs), system restarted
2/21/2002	System shutdown, GAC breakthrough
2/27/2002	One GAC vessel was changed out (8,000 lbs), system restarted
3/8/2002	System shutdown, GAC breakthrough, one GAC vessel was changed out (8,000 lbs), system restarted
3/29/2002	Pilot system shutdown and removed, GAC breakthrough, install 1,000 scfm unit
4/17/2002	One GAC vessel (8,000 lbs) changed out in preparation for 1000 scfm unit
5/15/2002	1000 scfm unit installed and started, South vessel as primary carbon
5/18/2002	System shutdown, west vessel switched into primary position, system restarted
5/21/2002	South GAC vessel was changed out (8,000 lbs), system restarted, south vessel as primary carbon
5/27/2002	System shut down, GAC breakthrough
5/29/2002	South and West GAC vessel were changed out (16,000 lbs), system restarted, west vessel as primary carb
6/3/2002	North vessel as primary and south vessel as secondary carbon, system modifications installed
6/7/2002	System shutdown due to apparent vandalism
6/12/2002	GAC overheating discovered. Quenched with water
6/13/2002	Additional GAC quenching. GAC removed from all three vessels
8/1/2002 - 9/30/2002	Bidding and procurement for retrofit
10/30/2002	Notice to proceed for retrofit contractor
11/13/2002	Complete water line installation
12/3/2002	Deliver GAC vessels with retrofits
12/10/2002	Equipment and electrical installation
12/23/2002 - 1/2/2003	Holiday shutdown period
1/3/2003	System modification and testing
3/1/2003	Begin start-up procedures: Bring Category 3 wells on-line System operating during working hours.
3/17/2003	Continuing start-up procedures: Bring Category 2 wells on -line SVE is left to run continuously.
3/24/2003	One GAC vessel was changed out (8,000 lbs), system restarted
3/31/2003	Second system shut down while waiting for carbon regeneration, GAC breakthrough.